Communication in the time of Covid- 19

1st Author Name- Samridhi Mishra
College- Symbiosis Institute of Management Studies
Designation- MBA Student
Email- samridhimishra2010@gmail.com

2nd Author Name-Dr. Pradnya V. Chitrao,
College- Symbiosis Institute of Management Studies
Designation- Associate Professor
Email- pradnyac@sims.edu

Article History: Received: 10 November 2020; Revised 12 January 2021 Accepted: 27 January 2021; Published online: 5 April 2021

Abstract: Do you think Covid-19 pandemic has changed the way we communicate? Our relation with voice and video calls has been changing in this new normal world. People have now been connecting in new ways and have started hosting virtual meets and virtual reunions with friends they have not met for decades. Education in this virtual era has also changed - the way we communicate with the instructors or facilities. The communication has not just changed with the corporate companies but the change in communication can also be observed in the education sector, in shops, in government facilities and even in the hospitals. Even though there was a presence of the online communication tools before the covid-19 pandemic, the use of these tools has increased exponentially in the recent days. This paper studies and examines the various ways of communication, have people adopted the new communication and the explains the future of communication in this virtual world.
Keywords: Teaching Strategies; Education; Comparative study; School; Indian education

1. Introduction

At the time of this writing, the world is in the middle of a pandemic which is spread by a novel corona virus, SARS-Cov-2 also called COVID-19. The World Health Organisation have recommended all the countries to impose lockdowns and have advised to stay at home. Because of these restrictions imposed by governments, the all the work organisations and education organisations have been forced to find another way of keeping their work going. Under these conditions, public communication has definitely diminished. With the restrictions to meet face to face, new difficulties emerged to remain socially connected.

During COVID-19 pandemic, several organizations are discovering new ways to interact and communicate with their clients. The interaction or communication examples include marketing through e-mails, communication through social media or other external applications for video calls. Communication with the clients can be through e-mails, text messages, voice calls, video chatting, voice messages and personally written notes. For instance, since most of the interaction in companies can not be done face-to-face with their clients, messaging, sending voice notes or sending an instant message can be the some of the most ideal choice. Since because of the digital and virtual communications there can be various impacts on business. In compared to normal face-to-face meetings digital communications may create misunderstandings between the clients. It is significant for the companies to train their employees on how to talk over the digital communication tools to create legitimate working solutions.

All stable partnerships have always relied on effective communication. Many people are operating from home during the mandatory quarantine, with little or no face-to-face contact except with their relatives. Along with the change in communication in the workplace, there has been an huge need for a change in the education system. There is an urge for teachers to teach the courses online. The communication with students has been completely made online. With increase in the online teaching activities, there is a dire need for teachers to be trained on the online communication tools for the classes that needs to be taken through online communication tools. These days most of the universities in India have adopted the google classroom or Microsoft teams to take the synchronous classes. On the web educating and learning suggest a specific instructive substance information, primarily identified with planning and putting together for better learning encounters and making particular learning conditions, with the assistance of computerized advances.

Rapid answers for the web guides needed to be provided with a purpose to keep away from a terrible effect at the teaching-studying process. In the beginning, the conversation with college students changed into done through e-mail, on different systems, packages (e.g., Zoom, Skype, WhatsApp) and social networks, or through phone. Meanwhile, the university's control analysed numerous on-line systems in order to select the maximum

handy one. A comparative evaluation changed into carried out, thinking about different standards such as: the most variety of members withinside the free/complete version, privacy, protection and end-to-end (E2E) encryption, the opportunity to make recordings, different capabilities and packages Integration (APPS Integration), using the whiteboard for

teaching.

Staying in contact with people, whether by phone, email, text, or old-fashioned letter, is possibly more important than ever. Getting back to normal is going to take quite a while, but it's also important to note that even without the pandemic, the "normal" shifts with time. In future, social and digital media will not fade away and will stay relevant. However, they would not be able to take the place of face-to-face offline communication.

2. Literature Review

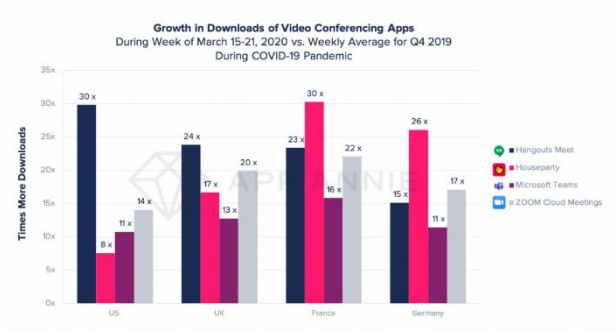
The ongoing Covid-19 pandemic (World Health Organization, n.d.) has contributed to the stress and workloads faced by university colleges and employees who were still struggling to maintain teaching, study, and job commitments, let alone work-life balance (Houston, Meyer and Paewai 2006; Houlden and Veletsianos 2020). Teachers from all backgrounds have had to put their classes together and deliver them from home for a long time, with all the logistical and technological challenges that entails, and often without the benefit of adequate technical support (Hodges et al. 2020). Furthermore, a major estimated obstacle for educators has been the lack of instructional content material capability (PCK) (Shulman 1987) needed for online instruction (Angeli and Valanides 2005; Kali, Goodyear and Markauskaite 2011; Ching, Hsu and first baron baldwin of bewdley 2018). The advanced and authoritative elements of online teaching are included in this academic content material capacity (for example individually, the utilisation of frameworks and gear and arranging work processes). In a broader sense, it brings together the educational institutions as well as the information on musings needed to prepare for and deal with critical online learning experiences.

Our data indicates that superior communications have improved, pointing to automatic difference grants. People's Internet access and abilities fluctuate, according to advanced disparity analysis, which can affect the benefits they can gain from correspondence innovations (e.g., DiMaggio et al., 2004). One-fourth of the population of the United States does not have access to broadband Internet at home, and about one-fifth does not have access to a mobile phone (Pew Research Center, 2019b, 2019c). Lower-income Americans are also worse off, with 44 percent losing broadband Internet access and 29 percent no longer owning a smartphone. Aside from access to performance, shaky Internet connectivity and problems with preserving the usability of devices are other challenges with innovation (Gonzales, 2016; Marler, 2019). Furthermore, at some point during the pandemic, a few people would be able to rapidly cultivate the ability to use automated media to effectively replace face-to-face contact (Hargittai and Micheli, 2019). Individuals who often use informing, audio, and video-conferencing services must learn how to download and instal them on their computers, as well as a few different ways to use them. Less technically savvy individuals may assume that modern automated communication techniques, such as hosting a digital birthday party or playing pre-packaged video games over a video call, are more difficult to comprehend and engage in. When in-man or woman contact is limited due to isolating rules, some individuals are more at risk of being excluded from their social community than others.

As per a research conducted by one of the leading analytics company App Annie, we are able to see that the global downloads of business applications have been tremendously increased. The increase of downloads in 2020 is almost 90% more than the average of 2019 (shown in the graph below). The number of downloads has increased to 62million during March 2020. While comparing the three most used applications in digital communication Zoom, Google meet and Microsoft Teams – it was seen that Zoom was downloaded 14 times more than any other applications. In addition to the people who are working from home, there was also an increase in the applications such as Houseparty for the millennials who want to meet with people online.

Figure 1: Global Downloads of BusinessApps
Source: https://www.appannie.com/en/insights/market-data/video-conferencing-apps-surge-coronavirus/

Figure 2: Growth in Dowload of Video Conferencing Apps
Source: https://www.appannie.com/en/insights/market-data/video-conferencing-apps-surge-coronavirus/



As in-person collaborations become more restricted, an alternative trend is emerging in which people are increasingly interacting via video chat applications and ser-indecencies for correspondence (Kemp, 2020; Koeze and Popper, 2020). This type of adoption may be more common among the more educated. These new receivers, on the other hand, could involve people who previously used advanced technology less often and with less expertise, but now feel compelled to do so (e.g., from their informal community). According to our findings, 63 percent of those with limited Internet skills report using some of the techniques listed to increase their computerised correspondence. On a global scale, "vis-à-vis" advanced between operations by video-conferencing programming has seen a surge in popularity in recent months, with statistics substantially higher in countries with tougher lockdown measures (Kemp, 2020; also see webuse.org/Coronavirus for correlations with Italy, where lockdown measures were stricter than in the US).

A shortage of (access to) computerised assistance could have intensified advanced inequality during the COVID-19 pandemic. As the world becomes more reliant on advanced engineering for communication, the less educated will need more help than at any time in recent memory. People rely on family and peer networks for advanced help the majority of the time (Eynon and Geniets, 2016; Hunsaker et al., 2019; Micheli et al., 2019). Social isolation and stay-at-home policies may make computerised assistance more difficult to obtain, especially for those who rely heavily on social connections. More developed individuals, as well as those with minimal Internet skills, are likely to reduce computerised correspondence during the container crisis, according to our findings. While the Internet can also be used as a more specialised means of help (e.g., web crawlers, informal association pages, and discussions), these services are typically used by those with a greater level of Internet expertise and skills (Micheli et al., 2019). Since they currently have less access to resources for developing better communication strategies, the less well-informed will become increasingly disconnected from society.

2.1 Comparative analysis of the online platforms

To study the implementation of online platforms and the options available in the market we did a comparative analysis of all the available online platforms. We analysed what all would an education instituition or a workplace would need in order to keep the communications and interactions going on. A workplace/education instituition will need the recordings of the meetings, low cost of the platform, security and end to end encryption and whiteboard for educational teachings and for presentations in a workplace. Also, we would need to consider the number of people a platform will allow to join at a time. After analysing the needs of communication, we involved the below online platforms and its features for the final comparative analysis.

Platform	Recording	Max. Participants Free/Full	Privacy, Security, E2E Encryption	Pricing	Exclusive Feature	Whiteboard
Skype	Storage 30 days in cloud	50 free version	Chats, calls and videos are encrypted, E2E encryption	5–12.5 $/month	Skype to Skype calls; Calls to mobiles and landlines; Group calls; Skype Number; Caller ID; One-to-one video calls; Group video calls; Video messaging; Instant messaging; Send texts (SMS); Send files; Skype Video Conference; Skype Classroom	No
Microsoft Teams	Storage 30 days in cloud	250/250	Microsoft Teams is ISO 270001 and SSAE16 SOC certified	Starting at 5 $/month	Integrated with Office 365, App Integrations; Live Collaboration in Real-Time; Conversation Threads; Collaboration withClients vendors & Suppliers; One Note; OneDrive	Yes
Zoom	Up to 1 GB of cloud reporting	100/500	Only features with the latest 5.0 have E2E encryption	15–20 $/month	Zoom Chat; Zoom Classroom; Zoom Video Recordings; Zoom Webinars; Google Drive; Hip chat; Dropbox; Slack; HubSpot; Infusionsoft	Yes
Cisco Webex Meetings	Yes, only in own computer	200 participants in the 30-day free trial	E2E encryption Multilayer Security Model Cisco Webex privacy	13.5–26.95 $/month	High-definition (HD) video & audio; Screen & Document Sharing; In-meeting & Recording Notifications Microsoft Office; Google Calendar; Salesforce; Jira; SharePoint Online; OneDrive for Business	Yes
Google Meet	Yes, in Google Drive	100/100	Privacy and security, but no 2E2 encryption	6–25 $/month	Gmail Business email; Meet Video and voice conferencing; Chat Team messaging; Calendar Shared calendars; Drive cloud storage; Docs Word processing; Sheets Spreadsheets; Slides Presentation builder; Forms Professional surveys builder.	No

3. Research Method

A survey was conducted in June 2021 to ask people about their experiences related to the communication experiences during this pandemic. The data contained responses from respondents whose age were between 18-70, both male and female and the people who were working and were pursuing their education.

We asked the respondents various questions revolving around the experiences they had regarding communication during this pandemic. Some questions are based on understanding if the social interactions of the people have been reduced during this pandemic situation or not. The questions are also based on the environment the person lives in and the type of profession he or she is.

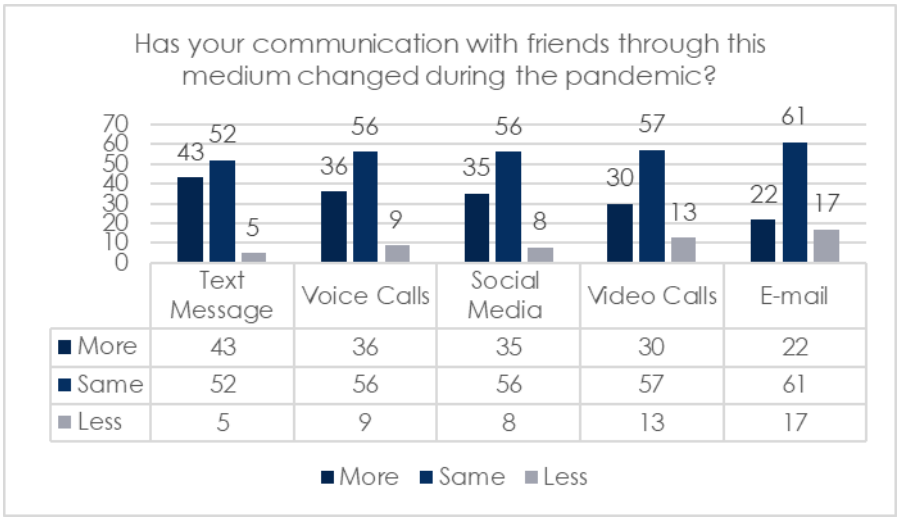
In addition to the above research study we also collected textual data from the twitter to do topic-modelling analysis of what is trending with respect to the communication all around the world. We collected data using the search terms as microsoftteams, skype, zoom and webex. The data was collected in the initial times of the lockdown which was March 2020.

4. Results and Analysis

4.1 Analysis with survey data

The respondents were asked various questions depending on which we compared the chi-quare results and found if the variables are significant or not in determining the change in the communication during the COVID-19 pandemic. Some of the major questions which had significance is described below:

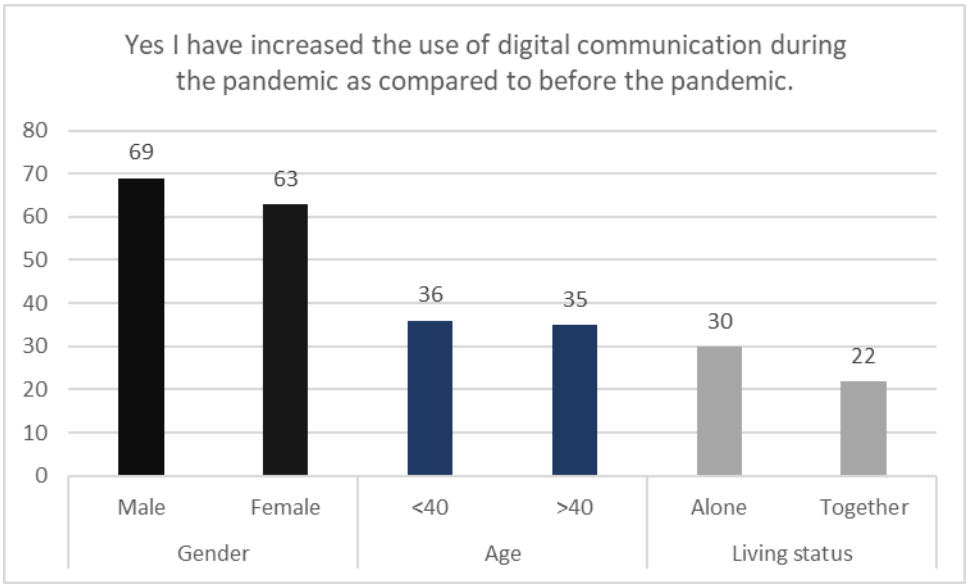
Has your communication/interaction with friends over Text Message / Voice calls /Social media /Video calls / E-mail changed during this pandemic?



The first question asked to the respondents were if their communication with friends changed over the pandemic situation. The communication tools that were analysed in this question was text message, voice calls, social media, video calls and e-mail. More than 50% of the people have responded that the communication over all the mediums were almost the same before and during the pandemic.

Have you increased the use of digital communication tools during this pandemic?

This question had the answers as yes and no. The data was analysed based on the respondents who has said yes and who has said no. We compared the people and found the correlation and significance of respondents who responded with yes with the variables like age, gender, if they are living alone or together. The following is the bar chart denoting the number of people who have responded yes for the above question.



After the chi-square tests, we have found that the relationship of gender and the people who responded yes to the above question have a significance with $p < 0.05$. Hence, there is a definite relation ship between the gender and the increase of use in the digital communication tool during this pandemic.

The relationship between the people who responded yes and are of age less than 40 have a significance with $p < 0.001$. Hence, the respondents who are of age less than 40 have a significant correlation with the increase in the use of digital communication tools during this pandemic.

Does living alone increase the use of digital communication tool over this duration of the global pandemic? According to the chi-square analysis of the variables, we have found that yes there is a significance of $p < 0.001$.

Living status of a person has significantly contributed to the increase of the use of digital communication during this period.

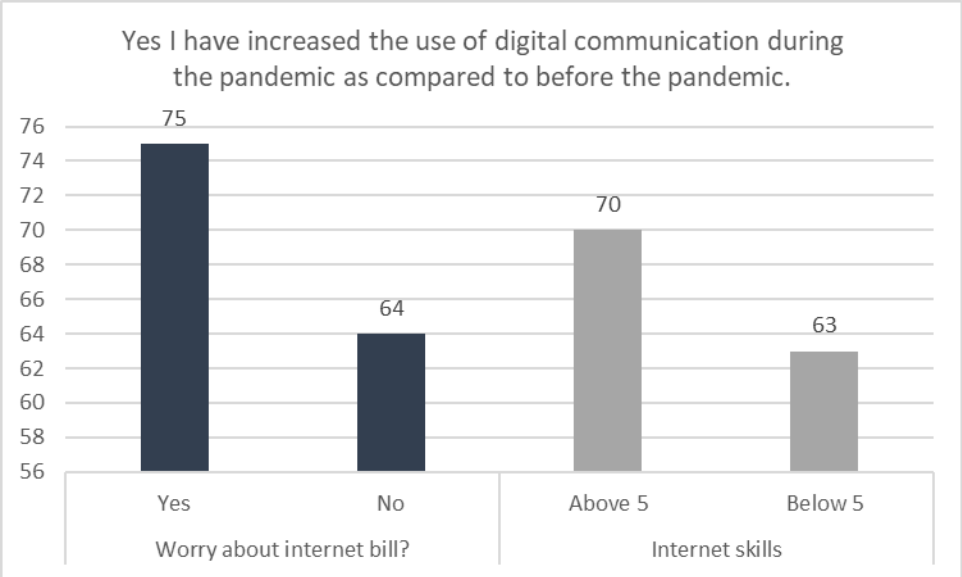
We then again compare the same respondents who said yes to the previous question and find significance with two more variables related to internet usage with the use of the below two questions:

a. Do you worry about the internet bill?

b. How much internet skills do you have? Rate yourself in a range of 1 to 10 – 10 being the most of internet skills.

The results of the above to questions are shown in the below graph. After performing chi-square tests, we can say that the internet usage variable is partially significant with the increase in the usage of digital communication tools. We are able to see that the people who do worry about the bills and the people who do not worry about their bills are significant with $p < 0.01$ in the chi-square tests.

Also, the variable of internet usage – possessing internet skills – is non-significant as per the chi-square tests. This tells us that it does not matter if a person posseses internet skill or not, there is no relationship of internet skills with the increase in digital communication usage during the pandemic.



From other significant questions, we can see that there is a strong positive relationship between 'the variables of – age below 40, gender, living status, if the person worries about his internet usage bill' and 'the increase in the usage of digital communication tools during the pandemic as compared to before the pandemic. Also as compared to all the above variables, gender is less significant. Also, there is no significance of internet skills in the increased usage of the digital communication tools over this period. When we say that there is no significance of internet skills, we can also observe that there is a high significance of internet skill when we find the relationship with decrease in the digital communication tools. Infering that knowing to use internet skills do not have a relationship with increase but definitely have a relationship with decrease in the usage of digital communication skills during the COVID-19 pandemic.

4.2 Analysis with twitter data

Using twitter data, we analysed in various sections as discussed below which resulted into interesting findings. By performing topic modelling on a sample of 1-lakh tweets we found a bunch of topics which were extracted from the process. We used Latent Drichilet Allocation(LDA) method and used python language to do the topic modelling. LDA uses the topic-word distribution (i.e. the chance that a word belongs to every topic) from the LDA output referred to as 'iterated pseudo-count' to produce correct estimates of the likelihood that an unseen document contains a selected topic. Using this we found five constructs which could classify most of the tweets. The below five constructs consists of the main topics which were found in the tweets and which showcases the change in communication and the problems that people face during this virtual time.

4.2.1: People catching up for coffee breaks online

We discover that video conferencing services facilitated social interactions with not just people's typical circles but it went beyond that. The video conferencing online platforms were used to engage socially with

collegues including for the coffee and lunch breaks. The tweets like *"I started a [virtual] morning coffee break with my team [. . .]. No work talk, just a chance to chat and check in [. . .]."* have proved such coffe breaks. In addition to thr above we have also seen topics associated to paintings, artwork and social gatherings online and this had a peak on Mondays and Fridays. These were the days where companies used to conduct icebreaking activities and motivating games for the employees to have better productivity throughout the week. Few companies started *"happy hour tradition"* which helped colleagues maintain their work life balance sitting at home but getting to perform ice breaking activities and meet their colleagues online for other than work.

4.2.2: Virtual board meetings and classrooms

Microsoft Teams and Google Classroom has become one of the most used online video conferencing platforms for the companies and educational institutions. Tweets have been surfaced online regarding the way people had to shift their face-to-face meetings and classrooms to virtual online platforms. This has been a difficulty to the people all over the world and mainly to the teachers who were not acquainted with the online world. *"[...] brings its own challenges but we are trying to utili[s]e technology to keep cases moving. Please review these [. . .] rules before scheduling a [virtual] hearing [. . .]."* These tweets have been rising from the start of covid-19 lockdowns. People are facing their own challenges but are finding the resources to keep things moving. Other than the board meetings and classroom activities, it has also now become normal to attend personal interested activities like concerts online. Tweets like *"[...] Concert where you can vibe to the music and meet other fans every Sunday for [...]"* makes us realise how people have started to embrace the new normal and changing the interactions and communication in the time of covid. *"Who says community boards are outdated? Not! [Our community board] held its first full board meeting via [video conferencing online platform] last night! We refuse to let [COVID-19] stop the important work that [is] needed now and for the future of our community."*

4.2.3: Attending webinars online

Our analysis of tweets also show that people have now started using online platforms to attend webinars and are also accessing the counselling services offered online. One such tweet, *"[. . .] some clients have asked me if I can do [virtual] sessions [. . .]. For those of you who are unable to visit me in person, an online [. . .] session [. . .] is now available [. . .]."* The best way to help the crisis, as well as the simplest way to continue attending regular consultations, is to attend such virtual appointments to access support services or obtain health or job recommendations.

4.2.4: Lacking features in the online platforms

Our analysis reveals that video conferencing online platforms lacked the options needed to satisfy users' and vice versa which users lacked the skills to configure up the video conferenceing platforms. Queries and recommendation for online video conferencing platforms and relating to options like changing or configuring the security settings and recording sessions show that users are having issues in configuring the security settings. But along with the issues we are also able to see in the tweets that they have been resolved also by the support teams. Along with that people are now getting acquainted using these online platforms. Tweets such as *"Working from home pro tip: Open a Word [document], set book or something heavy on the space bar. Computer views it as your typing and you [will not] go inactive. Also, if you have a [video conferencing online platform] pro account, just create a meeting for yourself. System [will not] go into standby."* Over time, the subject associated with obtaining started with bated slightly, whereas discussions regarding the advantages and downsides of online platforms accrued slightly. *"We know that [the hijacking of videoconferences] is now a thing. If using [video calls] for public purposes (where the link is shared widely), make sure to change the default setting so that only the host can share their screen or files and use options to mute/unmute participants."* Individuals began debating these benefits and disadvantages, indicating that they had reached a certain degree of proficiency with the technology as a result of using it often in their everyday lives, allowing them to make informed judgments.

4.2.5: Afraid to be on camera and to be always "on"

Analysis on the tweets suggests that people found it uncomfortable to go with the rules and habits related to work from home. As there was an absence of workplace people were not willing to carry work accessories inside their home "*Working from home week one: 'I [am going to get dressed up] and maintain a routine.' Working from home week [. . .]: 'I will wash my hair [only] if I am for sure going to be on [a video call].' [. . .]"* People were able to let themselves go because they didn't have to go to work and could fully rely on technology. As camera would show their unprofessional look, people felt vulnerable and were hesitant to come infront of the camera for the video conferences. Hence, as people got acquainted with the technology, they became ready to realise the effectiveness of the online platforms. On one side where virtual communication enabled users to have a social life throughout the pandemic, our analysis on the other side reveals some discomforts that was caused from this unconditional online life. Some tweets showed increased time demands and a high prevalence of unnecessarily scheduled meetings, which was also viewed as a monitoring tool: *"[. . .] if you are requiring [people] to be on*

more [video] calls than meetings you [would] have in person: is this because [the pandemic] increased the need for calls? Or, -do you [. . .] believe people can be productive [only in the] office. [. . .]" In some instances, online digital platforms were called as "life-savers" where at some instances it was mentioned that the same virtual platforms makes people tiresome. *"One of the things I am finding challenging [about] working from home [is] spending [a lot of time] on [virtual] calls etc. – so [after] work you do not really want to call friends because you [. . .] need a break from it."* the fact that the most of the aspects of life is happening online or through just one channel seems the key to such problems. x

5. Discussion

After the analysis of this data, we can see that more than 50% of the people feel that they have been using the digital communication tools the same during the pandemic and the locdown as compared to before the pandemic situation. While some 30-35% of respondents do believe that they have increased the use of digital communication tools during the lockdown/pandemic phase we cannot unsee the effect COVID-19 has made on the download of digital communication tools.

The development of online social relationships is similar to that of face-to-face relationships, but it takes longer (Walther, 1995). On the web, decision-making, identification with others and the cluster, and simple worker angle formation all take longer than in person. The processes are identical in general, but they are spread over time. We now have more nonverbal contact and identity signals updated on-line, thanks to the widespread acceptance of video interactions. Nonetheless, it isn't the same as face-to-face communication. Employees who work from home have less opportunities for casual contact and social interaction with their coworkers. Icebreaker activities at work help colleagues build common cognitions and increase understanding between the employees. Internal organisational digital platforms such as Slack or Microsoft Teams allow for casual text-messaging interactions between team members but they're no substitute for face-to-face conversations while at coffee breaks at the break room. The difficulty of forming intramural relationships is exacerbated by a lack of informal communication, particularly among new employees.

The high dependency on online platforms in this pandemic situation are making companies vulnerable to hackers and cyber-attacks. The more organisations take their work online, the more they are exposed to the outer world. Even though virtual online platforms came as life savers for the work to keep moving, people also feel fatigued due to the same virtual online platforms. Online education is making students feel tired and at the end of the do not feel worth the fees that they have been paying to do the education from distance and not getting the experience that they need.

Our survey analysis shows how the usage of online platforms has been increased during the pandemic. The people have been forced to take up online platforms for their work or education purpose but with using technology by every passing day they have got very used to the online platforms. They are now using these platforms easily without any hesitance. We could also observe that people have increased the download of online platform tools during this pandemic. This is also evident from the dire need of the world to go online.

From the twitter analysis, we are able to see how people have now adapted the online platform and are attending the webinars, events, meetings, school, lectures and consultation sessions online. Even though people have issues, the online platform companies have made it easy for people to access the technical support team of the company and make it possible for people to use the technology without any hindrance. People have issues of being on camera for a long time, extension of their work shifts (due to the work from home culture). On the other hand they have embraced the work from home culture as they have the comfort of working in their pajamas and not having to travel to their workplace. Hence even with the technical issues and lack of skills about the online platform, people have now adapted to the online platforms and are willing to continue the work from home culture in the future.

6. Conclusion & Scope of future research

The new examples of communication which have arisen at some point of the pandemic have numerous likely ramifications for a way matters will create later on. From one viewpoint, it is feasible that people automatic correspondence elevated because of the longing to test in with cherished ones all of the greater often at some point of this unique health emergency and in mild of the reality that in-man or woman methods for correspondence are much less achievable. It should likewise be that human beings have the extra time handy to spend on such communications because of lockdown measures and stay-at-domestic rules. Computerized correspondence practices can also additionally then go back to how they have been earlier than as soon as the emergency has completed and people grow to be much less involved approximately their pals and familys min-ute-with the aid of using-minute occasions and eye to eye correspondence are achievable as soon as greater. Then again, as people embody new superior specialised techniques, they can also additionally create tendency for those new

methodologies and keep them lengthy-term. To placed it plainly, the inspirations exciting to the hour of the pandemic can also additionally result in propensities that outlive the flare-up itself.

Will people who these days didnt rely on superior era for correspondence, but now embraced novel automatic strategies to maintain in touch with cherished ones, maintain on using those later on? It should in all likelihood be that video calls will turn out to be greater preferred after the pandemic. A comparable inquiry holds for other superior specialised techniques which have elevated at some point of the pandemic, for example, the usage of immediately messages, voice calls, web-primarily based totally media, email, and web-primarily based totally games. A document with the aid of using GlobalWebIndex (2020, pp. 99–100) shows that severa people desire to continue with new superior media practices even after the pandemic closures, however, the reality will floor sooner or later how the pandemic shapes people media makes use of over the lengthy haul.

Also, those styles should be investigated over the lengthy run, inclusive of their recommendations for political correspondence and news-casting, training and learning, health correspondence, technology correspondence, and a horde of distinct spaces. As automatic media grow to be greater fundamental to normal day today existence—a cycle that has been accelerated with the aid of using the global pandemic—the research of people correspondence and media practices is probably going to grow to be regularly significant

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